

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended): An automated processing apparatus, comprising:

means for homogenizing bio-matter;

means for separating solid bio-matter from juice of the homogenized bio-matter;

means for adjusting pH of the juice of homogenized bio-matter;

means for heating the juice of homogenized bio-matter to a predetermined temperature for a predetermined length of time;

means for centrifuging the heat treated juice of homogenized bio-matter to separate pellet from supernatant; ~~and~~

means for filtering the supernatant after centrifuging; and

a computer connected to each of said means, said computer for monitoring and controlling the automated processing apparatus.

Claim 2 (previously presented): An automated processing apparatus as set forth in claim 1, wherein said computer comprises memory and a means for outputting recorded information.

Claim 3 (previously presented): An automated processing apparatus as set forth in claim 2, wherein said means for outputting recorded information comprises a

printer for printing a written record of processing steps for processing bio-matter.

Claim 4 (cancelled)

Claim 5 (currently amended): An automated processing apparatus as set forth in claim ~~4~~ 1, wherein said filtering means includes an ultrafiltration system.

Claim 6 (previously presented): An automated processing apparatus as set forth in claim ~~4~~ 1, wherein said filtering means includes at least one first filter and a separate ultrafiltration system.

Claim 7 (previously presented): An automated processing apparatus, comprising: as set forth in claim 1, further comprises:

_____ means for homogenizing bio-matter;

_____ means for separating solid bio-matter from juice of the homogenized bio-matter;

_____ means for adjusting pH of the juice of homogenized bio-matter;

_____ means for heating the juice of homogenized bio-matter to a predetermined temperature for a predetermined length of time;

_____ means for centrifuging the heat treated juice of homogenized bio-matter to separate pellet from supernatant;

means for re-suspending pellet after centrifuging;

means for adjusting pH of re-suspended pellet; and

second centrifuging means for centrifuging pH adjusted re-suspended pellet to separate a second supernatant from pellet material; and
a computer connected to each of said means, said computer for monitoring and controlling the automated processing apparatus.

Claim 8 (previously presented): An automated processing apparatus as set forth in claim 1, wherein said means for homogenizing bio-matter comprises a grinder and press apparatus.

Claim 9 (currently amended): An automated processing apparatus as set forth in claim 8, wherein said ~~means for separating solid bio-matter from juice of the homogenized bio-matter comprises a press~~ is downstream of said grinder.

Claim 10 (currently amended): An automated processing apparatus as set forth in claim ~~8~~ 95, further comprising a dryer for drying the solid waste material expelled from said press.

Claim 11-12 (canceled)

Claim 13 (previously presented): An automated processing apparatus, comprising:
~~as set forth in claim 1,~~
means for homogenizing bio-matter;

means for separating solid bio-matter from juice of the homogenized bio-matter;

means for adjusting pH of the juice of homogenized bio-matter;

means for heating the juice of homogenized bio-matter to a predetermined temperature for a predetermined length of time;

means for centrifuging the heat treated juice of homogenized bio-matter to separate pellet from supernatant; and

a computer connected to each of said means, said computer for monitoring and controlling the automated processing apparatus; and

wherein said means for adjusting pH of juice of homogenized bio-matter comprises:

a tank for holding the juice of homogenized bio-matter;

a pH sensor within said tank connected to said computer;

a pH adjuster supply;

a fluid level sensor within said tank connected to said computer; and

a pH adjuster supply control valve connected to said computer, said computer controlling introduction of pH adjuster in response to signals from said pH sensor.

Claim 14 (previously presented): An automated processing apparatus as set forth in claim 13, wherein said means for adjusting pH of juice of homogenized bio-matter further comprises a re-circulating system for re-circulating the juice exiting said tank back into said tank in response to control signals from said computer.

Claim 15 (previously presented): An automated processing apparatus as set forth in claim 14, wherein said re-circulating system further comprises:

a flow control pump connected to an outlet pipe from said tank;

a valve proximate said flow control pump; and

a re-circulation pipe from said valve to said tank;

wherein said valve is adapted to direct flow of pH adjusted juice from said outlet pipe and said flow control pump back into said tank in response to control signals from said computer.

Claim 16 (previously presented): An automated processing apparatus as set forth in claim 15, further comprising a heat retaining means downstream from said means for heating, said heat retaining means having a temperature sensor connected to said computer for monitoring temperature of heated juice.

Claim 17 (previously presented): An automated processing apparatus as set forth in claim 16, wherein said computer is programmed to receive signals from said a pH sensor, said fluid level sensor, and said temperature sensor of said heat retaining means, signals received from said sensors processed by said computer for control of said means for adjusting pH of juice of homogenized bio-matter and said valve proximate said flow control pump.

Claim 18 (previously presented): An automated processing apparatus as set forth in claim 17, further comprising a cooling device downstream from said heat retaining

means for reducing temperature of heat treated juice exiting said heat retaining means.

Claim 19 (previously presented): An automated processing apparatus as set forth in claim 18, further comprising:

a second tank downstream from said cooling device for retaining cooled heat treated juice exiting said cooling device;

a second valve between said second tank and said means for centrifuging;
and

a re-circulation pipe from said second valve to said second tank;

wherein said second valve is adapted to direct flow of cooled juice from an outlet pipe of said second tank and said flow control pump back into said tank in response to control signals from said computer.

Claim 20 (previously presented): An automated processing apparatus as set forth in claim 19, wherein said means for heating the juice of homogenized bio-matter for a predetermined length of time comprises:

a heater for heating the juice; and

a flexible length piping apparatus.

Claim 21 (currently amended): An automated processing apparatus, comprising: as set forth in claim 1,

means for homogenizing bio-matter;

means for separating solid bio-matter from juice of the homogenized bio-matter;

means for adjusting pH of the juice of homogenized bio-matter;

means for heating the juice of homogenized bio-matter to a predetermined temperature for a predetermined length of time;

means for centrifuging the heat treated juice of homogenized bio-matter to separate pellet from supernatant; and

a computer connected to each of said means, said computer for monitoring and controlling the automated processing apparatus; and

wherein said means for heating the juice of homogenized bio-matter for a predetermined length of time comprises:

a heater for heating the juice; and

a flexible length piping apparatus.

Claim 22 (previously presented): An automated processing apparatus as set forth in claim 21, wherein said flexible length piping apparatus comprises a plurality of pipes connected to one another in series by a plurality of removable elbow joints defining a pipeline having an adjustable predetermined length.

Claim 23 (currently amended): An automated processing apparatus, comprising: as set forth in claim 1,

means for homogenizing bio-matter;

means for separating solid bio-matter from juice of the homogenized bio-

matter;

means for adjusting pH of the juice of homogenized bio-matter;

means for heating the juice of homogenized bio-matter to a predetermined temperature for a predetermined length of time;

means for centrifuging the heat treated juice of homogenized bio-matter to separate pellet from supernatant; and

a computer connected to each of said means, said computer for monitoring and controlling the automated processing apparatus; and

wherein said means for centrifuging the heat treated juice of homogenized bio-matter to separate pellet from supernatant comprises a stacked cone-type centrifuge.

Claim 24 (previously presented): An automated processing apparatus as set forth in claim 23, wherein said centrifuge expels pellet at predetermined time intervals controlled by said computer.

Claim 25 (previously presented): An automated processing apparatus as set forth in claim 1, wherein said computer comprises:

a monitor for displaying information;

memory for storing collected data;

a plurality of inputs for receiving data from the automated processing apparatus; and

means for outputting data.

Claim 26 (previously presented): An automated processing apparatus as set forth in claim 25, wherein said means for outputting data comprises a printer for printing a written record of processing steps for processing bio-matter.

Claim 27 (currently amended): A computer for controlling an automated processing apparatus for processing bio-matter, the computer comprising:

a monitor for displaying information;

memory for storing collected data;

means for inputting data; and

means for outputting data;

wherein said computer is connected to, for control and operation of the following:

motors within a means for homogenizing bio-matter, said means for homogenizing bio-matter including a first cutter, and a second cutter, said first cutter having a plurality of blades for cutting the bio-matter to a first predetermined size; and said second cutter having a plurality of hammers for reducing the bio-matter to a second predetermined size smaller than the first predetermined size;

means for separating solid bio-matter from juice of homogenized bio-matter, including a press for extracting green juice from the bio-matter and expelling solid waste material;

means for adjusting pH of the juice of homogenized bio-matter;

means for heating the juice of homogenized bio-matter to a predetermined temperature for a predetermined length of time; and

means for centrifuging the heat treated juice of homogenized bio-matter to separate pellet from supernatant.

Claim 28 (previously presented): A computer for controlling an automated processing apparatus as set forth in claim 27, wherein said means for outputting data comprises a printer for printing a written record of processing steps for processing bio-matter.

Claim 29 (previously presented): A computer for controlling an automated processing apparatus as set forth in claim 28, wherein said computer is further connected to a filtering means for control and operation thereof.

Claim 30 (previously presented): A computer for controlling an automated processing apparatus as set forth in claim 29, wherein said filtering means includes an ultrafiltration system.

Claim 31 (currently amended): A computer for controlling an automated processing apparatus for processing bio-matter, the computer comprising: as set forth in claim 27,

a monitor for displaying information;

memory for storing collected data;

means for inputting data; and

means for outputting data;

wherein said computer is connected to, for control and operation of the following:

motors within a means for homogenizing bio-matter;

means for separating solid bio-matter from juice of homogenized bio-matter;

means for adjusting pH of the juice of homogenized bio-matter;

means for heating the juice of homogenized bio-matter to a predetermined temperature for a predetermined length of time;

means for centrifuging the heat treated juice of homogenized bio-matter to separate pellet from supernatant;

~~wherein said computer is further connected to, for control and operation thereof:~~

means for re-suspending pellet after centrifuging;

means for adjusting pH of re-suspended pellet; and

second centrifuging means for centrifuging pH adjusted re-suspended pellet.

Claims 32-33 (canceled)

Claim 34 (currently amended): A computer for controlling an automated processing apparatus for processing bio-matter, the computer comprising: as set forth in claim

27,

a monitor for displaying information;

memory for storing collected data;

means for inputting data; and

means for outputting data;

wherein said computer is connected to, for control and operation of the following:

motors within a means for homogenizing bio-matter;

means for separating solid bio-matter from juice of homogenized bio-matter;

means for adjusting pH of the juice of homogenized bio-matter;

means for heating the juice of homogenized bio-matter to a predetermined temperature for a predetermined length of time; and

means for centrifuging the heat treated juice of homogenized bio-matter to separate pellet from supernatant;

wherein said means for homogenizing bio-matter comprises a first cutter, and a second cutter,

said first cutter having a plurality of hammers for reducing the bio-matter to a first predetermined size;

said second cutter having a plurality of hammers for reducing the cut bio-matter to a second predetermined size smaller than the first predetermined size; and

said means for separating solid bio-matter from juice of the homogenized bio-matter comprises a press for extracting green juice from the bio-matter and expelling solid waste material.

Claim 35 (currently amended): A computer for controlling an automated processing apparatus for processing bio-matter, the computer comprising: as set forth in claim 27,

a monitor for displaying information;

memory for storing collected data;

means for inputting data; and

means for outputting data;

wherein said computer is connected to, for control and operation of the following:

motors within a means for homogenizing bio-matter;

means for separating solid bio-matter from juice of homogenized bio-matter;

means for adjusting pH of the juice of homogenized bio-matter;

means for heating the juice of homogenized bio-matter to a predetermined temperature for a predetermined length of time; and

means for centrifuging the heat treated juice of homogenized bio-matter to separate pellet from supernatant;

wherein said means for homogenizing bio-matter comprises a first cutter, and a second cutter,

said first cutter having a plurality of hammers for reducing the bio-matter to a first predetermined size;

said second cutter having a plurality of knives for reducing the bio-matter to a

second predetermined size smaller than the first predetermined size; and

said means for separating solid bio-matter from juice of the homogenized bio-matter comprises a press for extracting green juice from the bio-matter and expelling solid waste material.

Claim 36 (currently amended): A computer for controlling an automated processing apparatus for processing bio-matter, the computer comprising: as set forth in claim 27,

a monitor for displaying information;

memory for storing collected data;

means for inputting data; and

means for outputting data;

wherein said computer is connected to, for control and operation of the following:

motors within a means for homogenizing bio-matter;

means for separating solid bio-matter from juice of homogenized bio-matter;

means for adjusting pH of the juice of homogenized bio-matter;

means for heating the juice of homogenized bio-matter to a predetermined temperature for a predetermined length of time;

means for centrifuging the heat treated juice of homogenized bio-matter to separate pellet from supernatant; and

wherein said computer is further connected to, for control and

~~operation thereof~~, a dryer for drying the solid waste material expelled from said means for homogenizing bio-matter.

Claim 37 (previously presented): A computer for controlling an automated processing apparatus as set forth in claim 27, wherein said computer is further connected to:

a pH sensor within a tank of said pH adjusting means; and

a pH adjuster valve for controlling flow of a pH adjuster in response to signals from said pH sensor, pH adjuster being provided to said tank for adjusting pH of green juice within said tank.

Claim 38 (currently amended): A computer for controlling an automated processing apparatus for processing bio-matter, the computer comprising: as set forth in claim 27

a monitor for displaying information;

memory for storing collected data;

means for inputting data; and

means for outputting data;

wherein said computer is connected to, for control and operation of the following:

motors within a means for homogenizing bio-matter;

means for separating solid bio-matter from juice of homogenized bio-

matter;

means for adjusting pH of the juice of homogenized bio-matter;

means for heating the juice of homogenized bio-matter to a predetermined temperature for a predetermined length of time; and

means for centrifuging the heat treated juice of homogenized bio-matter to separate pellet from supernatant; and

further comprising a valve downstream from said means for adjusting pH of juice of homogenized bio-matter, said valve being connected to said computer for control of said valve; and

wherein said means for heating the juice of homogenized bio-matter comprises:

a flow meter;

a heater for heating the juice;

at least one temperature sensor proximate an outlet of said heater; and

a flexible length piping apparatus;

wherein, said computer is further connected to said temperature sensor and said flow meter, flow of juice through said flow meter and temperature of the juice being monitored by said computer and in response to non-optimal parameters sensed by said temperature sensor or said flow meter, said valve downstream from said means for adjusting pH is manipulated to change flow of the juice.

Claim 39 (currently amended): A computer for controlling an automated processing apparatus for processing bio-matter, the computer comprising: as set forth in claim

27,

a monitor for displaying information;

memory for storing collected data;

means for inputting data; and

means for outputting data;

wherein said computer is connected to, for control and operation of the following:

motors within a means for homogenizing bio-matter;

means for separating solid bio-matter from juice of homogenized bio-matter;

means for adjusting pH of the juice of homogenized bio-matter;

means for heating the juice of homogenized bio-matter to a predetermined temperature for a predetermined length of time; and

means for centrifuging the heat treated juice of homogenized bio-matter to separate pellet from supernatant, said wherein means for centrifuging comprises comprising a stacked cone-type centrifuge having means for expelling pellet connected to and controlled by said computer.

Claims 40-93 (canceled)

Claim 94 (currently amended): An automated processing apparatus as set forth in claim 9, wherein:

said grinder comprises a first grinder and a second grinder; and

~~said means for separating solid bio-matter from juice of the homogenized bio-matter comprises a press.~~

Claim 95 (previously presented): An automated processing apparatus as set forth in claim 94, wherein:

said first grinder and said second grinder are upstream of said press;

said first grinder includes a plurality of blades for cutting the bio-matter to a first predetermined size;

said second grinder includes a plurality of blades for cutting the cut bio-matter to a second predetermined size smaller than the first predetermined size; and

said press includes means for extracting juice from the cut bio-matter and means for expelling solid waste material.